

## REMARKS

The last Office Action of August 5, 2005 has been carefully considered. Reconsideration of the instant application in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 11-14 and 27-74 are pending in the application. Claims 11-53, 55, 65 and 72-74 are cancelled. Claims 54, 56, 57, 60, 61, 63, 66, 67, 69 and 71 have been amended. Of these, all claims with the exception of claim 60, 67 and 71 were amended to change their dependency. New claims 75-83 have been added. A total of 26 claims is now on file including three independent claims. No claim surcharge is due since more claims were cancelled than added. The Abstract of the Disclosure has been replaced. No other amendment to the specification has been made. No fee is due.

Applicant hereby certifies that neither the international application nor the designation of the United States was withdrawn or considered to be withdrawn prior to the filing date of the U.S. national (35 U.S.C. 111(a)) application.

Claims 37 and 39 were objected to by the Examiner for certain formal deficiencies. Claim 72 was objected to as being duplicate of claim 53.

It is further noted that claims 37-47, 49-64, 66-72 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 53, 72 and 73 stand rejected under 35 U.S.C. §102(b) as being anticipated by Fodor, S.P.A.; Reid, L.; Pirrung, M. C.; Stryer, L.; Lu, A. T.; Solas,

D. "Light directed Spatially Addressable Parallel Chemical Synthesis" Science 1991, 251, 767-773, (hereinafter: "Fodor").

Claim 73 stands rejected under 35 U.S.C. §102(b) as being anticipated by U.S. patent No.: 5,449,754 to Nishioka (hereinafter: "Nishioka").

Claims 53, 54, 72 and 73 stand rejected under 35 U.S.C. §102(b) as being anticipated by the Nishioka reference.

Claims 37-39, 43-47, 50, 50, 52-56, 60-64, 67, 69, 72 and 73 stand rejected under 35 U.S.C. §102(b) as being anticipated by WO 98/12559 to Demers (hereinafter: "Demers") as evidenced by Nishioka.

## **OBJECTION TO THE SPECIFICATION**

The Examiner has objected to the Abstract as being in improper form. In response thereto, applicant has submitted a newly drafted Abstract of the Disclosure in proper form and content.

The Examiner has furthermore requested that the specification be checked for minor errors (see also Clarification Amendment *infra*). Applicant has checked the specification and corrected one minor typographical error.

## **OBJECTION TO THE CLAIMS**

Applicant has cancelled claims 37, 39 and 72 so that the Examiner's objections thereto have been rendered moot.

**REJECTION OF CLAIMS 37-47, 49-64, 66-72 AND 74 UNDER 35 U.S.C. §112,  
SECOND PARAGRAPH**

With respect to claims 37-47 and 49-53 and 72, the Examiner's rejection has been rendered moot since these claims have been cancelled.

With respect to claims 66-71 and 74, applicant changed the dependency of these claims to independent claim 75. It is believed that these claims are now in proper form.

As a result of the cancellation of the claims 37-47 and 49-53 and 72, the rejection under 35 U.S.C. §112, second paragraph becomes moot.

Withdrawal of the rejection of claims 66-71 and 74 under 35 U.S.C. §112, second paragraph is thus respectfully requested.

**GENERAL COMMENT TO 102 AND/OR 103 REJECTIONS WITH RESPECT  
TO THE PRIORITY:**

The Examiner has acknowledged the priority based on a foreign priority document claimed by applicant but since the priority document had not been forwarded yet, has based the application date on the filing of the PCT application PCT/DE99/03982 of December 14, 1999.

Submitted herewith are the two certified German priority documents of 12/14/1998 and 7/30/1999.

**REJECTION OF CLAIMS 53, 72 AND 73 UNDER 35 U.S.C. §102(b) AS BEING  
ANTICIPATED BY FODOR**

Applicant has cancelled claims 53, 72 and 73 so that the Examiner's objections thereto have been rendered moot.

Withdrawal of the rejection of claims 53, 72 and 73 under 35 U.S.C. §102(b) is thus respectfully requested.

Applicant has presented new claims 75, 80 and 83 in which the method of the invention is set forth.

As a general comment, all prior art cited by the Examiner refer to lithographic methods. All lithographic methods have severe drawbacks. Fodor is directed to a lithographic method. In all lithographic methods a surface of the substrate is patterned into two kinds of areas, namely areas with protecting groups removed to allow for a chemical reaction and areas where the protecting groups are not removed thus hindering chemical reaction. Fodor is not directed to positioning at different times a pattern of different immobilized peptide or nucleic acid monomers in the form of transport units at a solid state of aggregation to a support, which transport units differ from each other by the monomers immobilized within; wherein the immobilized peptide or nucleic acid monomers are temporarily blocking a coupling reaction of the monomers to the support by the reversibly immobilized monomers; inducing a change in the transport units from the solid state of aggregation to a liquid state of aggregation, thereby permitting a free diffusion of the monomers; then carrying out a coupling

reaction to couple at least two different of the monomers to the support at the same time in one single combinatorial synthesis.

Therefore, Fodor does not anticipate claim 75, 80 and 83.

**REJECTION OF CLAIMS 73 UNDER 35 U.S.C. §102(b) AS BEING  
ANTICIPATED BY NISHIOKA '754**

Applicant has cancelled claim 73 so that the Examiner's objections thereto have been rendered moot.

Applicant has presented new claims 75, 80 and 83. Nishioka '754 uses a liquid printing method in an ink jet printer. In contrast, as claimed, the monomers are transferred in dry transport units with the monomers imbedded therein. The method of the invention uses solid toner particles, hence the dry transport units.

The claims as presented patentably distinguish over the prior art.

**REJECTION OF CLAIMS 53, 54, 72 AND 73 UNDER 35 U.S.C. §102(b) AS  
BEING ANTICIPATED BY NISHIOKA '679**

Applicant has cancelled claim 53, 54, 72 and 73 so that the Examiner's objections thereto have been rendered moot.

Nishioka '679 is also directed to a lithographic method which differs from the method as claimed in new claim 75. The claimed method does not represent a lithographic method. The method as claimed is directed to a method, whereby the transport units have different monomers immobilized within.

In view of the above comments, Nishioka does not anticipate the claimed invention.

**REJECTION OF CLAIMS 37-39, 43-47, 50, 52-56, 60-64, 67, 69, 72 AND 73  
UNDER 35 U.S.C. §102(b) AS BEING ANTICIPATED BY DEMERS AS  
EVIDENCED BY NISHIOKA '754**

Applicant has cancelled claims 37-39, 52-55 and 72-73 so that the Examiner's objections thereto have been rendered moot.

With respect to claims 56 and 69, these claims depend on claim 75. It is believed that claim 75, which contains essentially the subject matter of claim 55 as now drafted patentably distinguishes over the prior art, in particular Demers as evidenced by Nishioka.

In principle, the difference between the claimed invention and those disclosed in the references cited are that all cited references refer to type a lithographic method, which is done by successive cycles of spatially defined de-protection and chemical reaction of the uniformly dispersed different monomers. When using the method for oligopeptide synthesis, 20 different coupling cycles are needed to generate e.g. a decameric peptide array, resulting in  $10 \times 20 = 200$  coupling cycles as compared to the printing methods used in the claimed invention.

In the method as claimed, the monomers are first embedded in a dry solvent to form transport units in a solid state of aggregation. The Examiner's

statement that Demers includes a solid state of aggregation is incorrect and is not supported by the reference. Demers states, as per the Examiner's citation, *...the synthesis layer may comprise a gel phase [i.e. a solid state of aggregation]*. Applicant has specifically removed the references to a gel-like state of aggregation in favor of the solid as now claimed in claim 75, from which the claims here at issue depend. While the Examiner reads the synthesis layer in Demers as applicant's *transport units*, applicant's transport units are discrete units of immobilized monomers. Demers, like Fodor or Nishioka '679, discloses Yet another method for lithographic synthesis where the action of light de-protects defined surface areas, which thereby become accessible for combinatorial synthesis, see p. 21, 3d full paragraph, where this is specifically stated. The gel-phase synthesis layer in Demers cannot be equated with the embedding a substance in a matrix in a solid state of aggregation as claimed. In the present invention the monomers are embedded in the toner particles, which are dry and the resulting transport units are likewise dry. So long as the monomers (or oligos) are present as transport units on the support they are in an immobilized state. Demers solvent molecules are within the gel-phase synthesis layer are certainly not in a solid state of aggregation but should diffuse as freely as possible in order to get an optimized synthesis reaction. In the presently claimed invention the movement of the solvent is blocked until the monomers are mobilized. As such, the claims distinguish over the Demers reference.

With respect to the temperature limitation, applicant specifically claims a temperature limitation in various ranges, so that the temperature has a certain

criticality. Thus, temperatures exceeding the limitation are considered outside the claimed parameters. The description describes that temperature limitations in detail. Applicant has thus discharged its burden to show that the prior art is not the same as what is claimed.

As for claims dependent on claim 75, these claims share its presumably allowable features, and therefore it is respectfully submitted that these claims should also be allowed.

As such, claims 56-64, 66-74 are patentable over Demers in the same manner as claim 75.

Withdrawal of the rejection of claims 56 and 69 under 35 U.S.C. §102(b) and allowance thereof are thus respectfully requested.

## **CONCLUSION**

Applicant believes that when reconsidering the claims in the light of the above comments, the Examiner will agree that the invention is in no way properly met or anticipated or even suggested by any of the references however they are considered.

None of the references discloses a method for the combinatorial synthesis of monomers respectively oligomers as claimed.

In view of the above presented remarks and amendments, it is respectfully submitted that all claims on file should be considered patentably differentiated over the art and should be allowed.

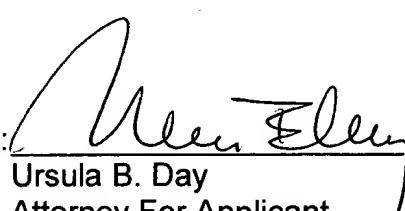
A certified copy of the German priority documents 199 35 553.3 and 198 57 529.7 under 35 U.S.C. §119(a)-(d) are enclosed herewith.

Reconsideration and allowance of the present application are respectfully requested.

Should the Examiner consider necessary or desirable any formal changes anywhere in the specification, claims and/or drawing, then it is respectfully requested that such changes be made by Examiner's Amendment, if the Examiner feels this would facilitate passage of the case to issuance. If the Examiner feels that it might be helpful in advancing this case by calling the undersigned, applicant would greatly appreciate such a telephone interview.

Respectfully submitted,

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